



Tree of heaven
(*Ailanthus altissima*)

CHUCK BARGERON, UNIVERSITY OF GEORGIA

Ironically named, this weedy tree grows fast, adding three feet a year and reaching up to 80 feet. It is primarily found in urban areas in southern Wisconsin. However, it is rapidly spreading in forests in the states to our south and east. In forests it quickly reaches the canopy and shades out mature trees. Leaves and flowers may cause contact dermatitis in some people. It also produces toxins that can prevent the establishment of other plant species. In cities, its aggressive root system damages sewers, sidewalks and foundations. When cut, it produces suckers and stump sprouts. A single tree can bear up to 325,000 wind-dispersed seeds each year. The most distinctive characteristics of this deciduous tree are its foul odor and its four-foot-long compound leaves.

Please report any *Ailanthus* found in forested areas, including urban parks.



Oriental bittersweet
(*Celastrus orbiculata*)

CHRIS EVANS, RIVER TO RIVER, CNMA

Easily confused with the native American bittersweet, Oriental bittersweet is a serious threat to grasslands, woodland edges, forests, roadsides and beaches. This woody climbing vine is capable of over-topping tall trees, shading, girdling, and eventually pulling them down. Oriental bittersweet vines grow up to 60 feet high and four inches in diameter. The fruit's yellow membrane eventually splits to reveal a red inner fruit. Birds and mammals disperse the seeds. There are a number of scattered

infestations known in Wisconsin, but it is not yet widespread. Wreaths and floral arrangements with bittersweet or other seeds should be disposed of in the trash rather than in compost or brush piles. Be sure you've identified the correct bittersweet: our native American bittersweet has leaves with a more tapered tip and larger fruit clusters at the ends of stems, and the fruits are produced in small clusters at the leaf axils.



Porcelain berry
(*Ampelopsis brevipedunculata*)

ELIZABETH J. CZARAPATA

Sometimes planted as an ornamental, porcelain berry is a deciduous, woody vine in the grape family. It can be extremely aggressive, shading out native vegetation by blanketing the ground, and climbing trees and shrubs using its tendrils. In forests in the mid-Atlantic states it grows rapidly along forest edges, trails, roadsides, riparian and open areas. Wildlife eat the distinctive pink, blue and lavender fruits, then disperse the seeds. We know of only a few infestations in Wisconsin, although it is much more abundant to the south. Reports indicate only the green-leaved variety is invasive; the variegated cultivar appears to be benign.



Kudzu
(*Pueraria lobata*)

RANDY CYR, GREENTREE TECHNOLOGIES

Notorious as "The vine that ate the South," kudzu is known for its ability to cover large trees, forest edges, utility lines, billboards, abandoned houses and anything in its path. Nearby vegetation dies for lack of sunlight. A single kudzu

root can produce up to 30 vines capable of growing up to a foot a day and 60 feet per summer. It quickly girdles and blankets shrubs and trees, breaking branches and uprooting entire trees under its weight. Kudzu reproduces via runners, rhizomes, vines that root at the nodes, and hard-coated seeds dispersed by wind, water and animals. This perennial legume has large three-part leaves and reddish-purple flowers that produce flat, brown, pea-like pods. Although no populations have been found in Wisconsin, recent research showed the northernmost population has been producing viable seed. Those plants were located in Evanston, Illinois — about 30 miles south of the border.



Japanese honeysuckle
(*Lonicera japonica*)

CHRIS EVANS, RIVER TO RIVER, CNMA

This semi-evergreen woody vine resembles native honeysuckle vines, but it has pairs of white, cream or pink flowers, hairy opposite leaves, and produces purplish black berries. Japanese honeysuckle spreads in woodland edges, floodplains, fields and roadsides. The vines typically grow six to ten feet in height, but can reach up to 30 feet, forming dense intertwining mats that outcompete native vegetation for light, water and nutrients, and topple shrubs and trees. Japanese honeysuckle reproduces via underground stems (rhizomes) and seed dispersed by birds. Toxins from the vine may inhibit the regeneration of some trees. It is abundant in central Illinois and seems to be expanding northward. There may be ornamental cultivars that are not invasive.



Baby's breath
(*Gypsophila paniculata*)

STEVE DEWEY, UTAH STATE UNIVERSITY

One of the most commonly used plants in the floriculture industry, baby's breath is troublesome only when it gets into Great Lakes dunes. On these shores it can form a huge taproot and stabilize naturally shifting sand dunes to the point of significantly changing the open dune habitat certain native plants need, as is the case with the federally threatened dune thistle (*Cirsium pitcheri*) in Michigan. It is currently invading the Michigan shore of Lake Michigan, but has not yet been found on Wisconsin's west shore of the lake. Baby's breath is a perennial forb growing up to three feet tall with a thick, deep taproot and branched stem. It has narrow opposite leaves and white or pink flowers with five petals.



Japanese knotweed
(*Polygonum cuspidatum*, syn.
Fallopia japonica)

TOM HEUTTE, USDA FOREST SERVICE

Often erroneously referred to as "Mexican bamboo," this semi-woody perennial in the buckwheat family is found in urban areas where it was planted years ago. It spreads rapidly by rhizomes, forming large, dense thickets that eliminate native vegetation and wildlife habitat. Although it is already somewhat widespread in much of the state, it is generally not yet in the habitats where it is likely to become extremely invasive. Once it gets into the shore of a river, stream or lake, knotweed can

spread by root fragments, forming thickets that line the shore for miles and cause extensive shoreline erosion. Once established, large dense stands are difficult to eradicate. Thick bamboo-like stems reaching six to eight feet, with large heart-shaped leaves and terminal lacy clusters of white flowers make it very easy to identify this plant.



Poison hemlock
(*Conium maculatum*)

STEVE DEWEY, UTAH STATE UNIVERSITY

One of the most poisonous plants in the world, poison hemlock is a biennial forb in the parsley family. In Indiana and Illinois it is abundant along roadsides, from which it spreads into moist sites such as stream banks, wet meadows and ditches, although it can thrive in drier sites. Only a few patches have been reported in Wisconsin, although it is spreading in some sites and is likely to become more abundant soon. Taller than most plants in this family, it can reach over seven feet and has pinnately compound leaves, green stems with purple or black spots and multiple umbels of white flowers.



Wild chervil
(*Anthriscus sylvestris*)

WWW.FORESTRYIMAGES.ORG

Although not currently widespread in the upper Midwest, wild chervil, native to Europe, is prolific in areas where it is found. It has spread rapidly in the northeast in recent years. While reportedly not a problem in cultivated fields, this biennial or short-lived perennial

forb in the parsley family competes aggressively with forage crops for light, water and nutrients, and shades out surrounding vegetation. It can also spread along roadsides into grasslands and open woods. It has finely compound leaves and a taproot. In the second year, the plants produce hollow flower stems, usually three to four feet tall (it can reach six feet). Tiny white flowers form in umbels, like umbrellas.



Hill mustard
(*Bunias orientalis*)

BARBARA TOKARSKA-GUZIK

A new invader just recently sighted in Wisconsin, hill mustard appears to invade open grassland sites, rapidly forming dense patches that exclude other plants. Although it can be a biennial, the plants known in southern Wisconsin appear to be perennials. From a distance, this plant looks like the common yellow rocket with its bright yellow, four petaled flowers. However, the leaves are up to twelve inches long on the lower part of the flowering stem, getting smaller as they go up the stem. They look somewhat like dandelion leaves. The warty bumps on the stem are distinctive.



Pond water-starwort
(*Callitriche stagnalis*)

UEC BOTANICAL GARDEN

This floating aquatic plant has been found in states in the northeast, northwest and a few sites in Wisconsin. Pond water-starwort grows in ponds, marshes and streams. It is capable of creating locally dense mats of vegetation that may crowd out native aquatic

vegetation. The floating stems have small, densely packed oval leaves that form overlaid crosses and tiny inconspicuous flowers.



Yellow floating heart
(*Nymphoides peltata*)

M. MALCHOFF, UNIVERSITY OF FLORIDA CAIS

Looking like a small yellow water lily, yellow floating heart is a floating aquatic perennial. This plant often is used as an ornamental in water gardens. It can form large floating mats in slow-moving rivers, lakes, reservoirs, ponds and swamps. Infestations occur in northern Indiana and northern Illinois, but have not yet been found in Wisconsin.



Brazilian waterweed
(*Egeria densa*)

LESLIE MEHRHOFF, IPANE

Sold for use in aquariums or water gardens, Brazilian waterweed can form stands that crowd out native aquatic plants in lakes, rivers, ponds and springs. It provides poor habitat for fish and waterfowl, interferes with recreational activities, and supports large populations of mosquitoes. It has been found as far north as Oregon, Illinois and Vermont. During winter, it survives along the bottom and resumes growing when waters reach 50 degrees Fahrenheit. It is a submerged species that resembles our native elodea, but with more showy emergent flowers with three white petals and a yellow center.



Fanwort
(*Cabomba caroliniana*)

KERRY DRESSLER

A submersed or sometimes floating aquatic perennial, fanwort is sometimes sold for use in aquariums. It often finds its way into local ponds and streams where it forms dense stands, crowding out other vegetation, clogging streams and interfering with recreational uses. As with many aquatic plants, a small fragment can regenerate a whole plant. Considered weedy even in its native range, it has created severe nuisance conditions as far north as New York, Michigan and Oregon. It has both submersed and floating leaves of different shapes. The white flowers are held above the water on a stalk.



Parrot feather
(*Myriophyllum aquaticum*)

Closely related to and easily mistaken for Eurasian water-milfoil, parrot feather is an aquatic perennial in the milfoil family. Commonly sold by the aquarium trade — often under other names — parrot feather has both submersed and emergent leaves. Small fragments can quickly grow into dense mats, providing ideal mosquito larvae habitat and shading out native algae that serve as the basis for the aquatic food chain. Infestations can also hinder water and boat movement in lakes, ponds and streams. It has naturalized throughout the southern states and northward as far as Idaho, Washington and New York. Research studies showed it could survive average Minneapolis winter temperatures.

Still on the watch list

The following invasive species should also be reported. To read more about the species listed below and see photos of each, review a copy of the June 2006 story in *Wisconsin Natural Resources* magazine, "Green invaders on the horizon" by David Eagan. Review it online at www.wnrmag.com/stories/2006/jun06/invaade.htm

Report the following plants wherever they are found:

- Mile-a-minute** (*Polygonum perfoliatum*)
- Chinese yam** (*Dioscorea oppositifolia*)
- Japanese stilt grass** (*Microstegium vimineum*)
- Spreading hedge parsley** (*Torilis arvensis*)
- Black swallow-wort** (*Vincetoxicum nigrum*)
- Pale swallow-wort** (*Vincetoxicum rossicum*, syn. *Cynanchum rossicum*)
- Wineberry** (*Rubus phoenicolasius*)
- Japanese hops** (*Humulus japonicus*)
- Giant hogweed** (*Heracleum mantegazzianum*)
- European frog-bit** (*Hydrocharis morsus-ranae*)
- Hydrilla** (*Hydrilla verticillata*)
- Water chestnut** (*Trapa natans*)

Report the following plants if found in these habitats:

- **Tree of heaven** (*Ailanthus altissima*)
forests and woodland edges
- **Oriental bittersweet** (*Celastrus orbiculata*)
forests, woodland edges, grasslands
- **Porcelain-berry** (*Ampelopsis brevipedunculata*)
forests, woodland edges and grasslands
- **Japanese honeysuckle** (*Lonicera japonica*)
any plants growing in the wild
- **Japanese hedge parsley** (*Torilis japonicus*)
forests and woodland edges
- **Lesser celandine** (*Ranunculus ficaria*)
forests and woodland edges
- **Common teasel**
(*Dipsacus fullonum* subsp. *sylvestris*)
wetlands and native or restored prairies
- **Cut-leaf teasel** (*Dipsacus laciniatus*)
wetlands and native or restored prairies
- **Japanese knotweed**
(*Polygonum cuspidatum*, syn. *Fallopia japonica*)
wetlands, lakes, streams or shorelines
- **European marsh thistle** (*Cirsium palustre*)
wetlands, barrens and forests
- **Flowering rush** (*Butomus umbellatus*)
wetlands, lakes, streams or shorelines
- **Baby's breath** (*Gypsophila paniculata*)
Great Lakes dunes or beaches

Please report any occurrences of these species along with a detailed description of the location, photo and/or voucher specimen. Send to: Kelly Kearns, Endangered Resources Program, WI DNR, 101 S. Webster St., Madison, WI 53707-7921, 608-267-5066, kelly.kearns@wisconsin.gov

Kelly Kearns manages plant conservation programs for DNR's Bureau of Endangered Resources. Nicole Hayes studies native and exotic invertebrates at the UIW-Madison Center for Limnology.



Making a positive ID of bad actors

BROCK WOODS

Voucher specimens are plant samples that provide physical evidence to confirm that an invasive species is present in a specific location. Botanists examine these leaves, stems, flowers, roots and fruits to verify species identification.

When collecting a fresh specimen make sure you wear gloves as some plant stems and juices contain irritants. Also take detailed and close-up photos showing how widespread the stand of plants may be and close-ups that clearly show plant features like flowers, general shape, seed heads, leaf shape and arrangement. Sometimes close, clear photographs are sufficient to identify plants that have distinctive leaves, flowers and fruits. In photos, place a coin, pencil or ruler for scale. If you can send a specimen and take a photo, all the better.

Fill out a short invasive plant report that pinpoints where the plant was collected, estimates how widespread an area the plant covers and provides a description of the habitat type (forest, field, prairie, wetland, open water, lawn, garden, etc.). The DNR's invasive plants website details information needed in these accounts and provides a reporting form. Visit the website dnr.wi.gov/invasives/futureplants/reporting.htm

To send a dried sample, press the plant specimen carefully between several layers of newspapers sandwiched between sheets of cardboard and weighted down. Change the newspapers frequently until the plant is dry. Ship by enclosing the dried specimen between pieces of cardboard in a large envelope. Fresh plant samples should be enclosed in a plastic bag with a moist paper towel and mailed right away.

Instructions for packaging and shipping fresh plants or dried samples are available from Invasive Plant Reporting, DNR Endangered Resources Program, P.O. Box 7921, 101 S. Webster St., Madison, WI 53707-7921. E-mail information and photos to: kelly.kearns@wisconsin.gov. You can also get questions answered about voucher samples or look for more details at this link on the DNR's invasive plant website: dnr.wi.gov/invasives/futureplants/voucher.htm.

Unwelcome guests, unwelcome costs

Julia Solomon

If you've ever spent the day pulling garlic mustard from your woods or cleaning zebra mussels off the local beach, you know invasive species are a major pain. But did you know they are also a major expense?

Invasive species cost the United States an estimated \$120 billion dollars every year (Pimentel 2005). If you're wondering how that's possible, take a minute to think about some of the ways invasive species harm the economy as well as the environment.

■ **Prevention** — Governments, private organizations and individual citizens all spend money to prevent the spread of invasive species. Costs associated with prevention programs range from printing educational materials to maintaining high-tech devices like the two-way electrical barrier that keeps Asian carp from moving up the Illinois River into Lake Michigan and Great Lakes invaders from heading downstream toward the Mississippi. Although prevention can be expensive, it is the most cost-effective way to combat invasive species.

■ **Control** — Invasive species can be controlled through mechanical methods (removal by hand or machine), chemical methods (herbicides and pesticides), and biological methods (introduction of pests, competitors or other organisms that limit the spread of an invader). Although these techniques can be helpful in keeping invaders in check, they can be costly and labor-intensive. Invasive control is a long-term commitment and often requires repeated effort over many years. Complete eradication of invaders is seldom possible.

■ **Equipment damage** — Some invaders, such as zebra and quagga mussels, cause major damage to equipment and facilities. Power plants and water treatment facilities spend millions every year to clean mussels off their water intake equipment. Invasive mussels can also damage recreational watercraft.

■ **Lost revenue** — Invasive weeds decrease crop and forage yields. Forest pests harm valuable timber stands. Invasive plants such as honeysuckle, buckthorn and garlic mustard can prevent tree regeneration and reduce growth rates on older trees. In communities that rely on tourism and recreation as an economic mainstay, the presence of troublesome invaders such as Eurasian water-milfoil can devastate recreational resources and decrease tourism, reducing property values or causing local businesses to close.

■ **Health hazards** — Invasive species also pose health risks to humans and livestock. Each year thousands of people are burned when they mow or brush up against wild parsnip. The toxins in this plant interact with skin and sunlight to cause burns that can take months to heal. Zebra and quagga mussels wash up on beaches by the thousands, where their razor-sharp shells are hazardous to beachgoers. Spotted knapweed, leafy spurge, hoary alyssum and other plants can be toxic to grazing cattle and horses.

■ **Ecological harm** — It's impossible to put a dollar value on the ecological effects of invasive species, but they are profound. Invasive species compete with — and sometimes consume — native species. They can make it harder for native species to survive, and can cause significant population declines for rare and endangered species. In many cases they reduce the species diversity of the systems they invade. In Wisconsin, hundreds of lakes and millions of acres of land have been altered permanently by invading plants and animals.